

### Remarks

Claims 1, 8 through 18, and 21 through 27, as amended, are now pending.

Claim 1 has been amended to more clearly recite the method as “*blending in bulk*” the smectite clay with the elastomer “*in the absence of water addition to the elastomer host*” and “*in the absence of pre-intercalating the clay in an aqueous based medium*”.

Adequate basis for the amendments made to claim 1 may be found, for example, in the Applicant’s Specification on Page 1, Lines 11 through 19; Page 6, Lines 17 and 18; Page 7, Lines 8 and 9; and the Example on Page 12, Lines 30 through 33 and on Page 15, Lines 36 through 39.

### The Rejection

The following patents have been previously relied upon to reject various of the Applicant’s claims:

<u>U.S. Patents</u>	
5,936,023	Kato, et al (Kato)
6,034,164	Elpass, et al (Elpass)
6,060,549	Li, et al (Li)

Remaining Claims 1, 8, and 9 through 13 have been previously rejected under 35 U.S.C. Section 103(a) as being unpatentable over Kato.

Remaining Claims 8 and 14 through 18 have been previously rejected under 35 U.S.C. Section 103(a) as being unpatentable over Kato in view of Elpass.

Remaining Claims 21 and 22 have been previously rejected under 35 U.S.C. Section 103(a) as being unpatentable over Kato in view of Li.

### The Invention

As pointed out in the Applicant’s previous Response, it is contended that the process of the Applicant’s claims is novel and a significant departure from the cited Kato, Elpass and Li references, whether cited individually or in combination.

The process of the Applicant’s amended claims is based upon an intercalation and

exfoliation of a smectite clay in situ within an elastomer host via blending a quaternary ammonium salt with a mixture of the clay and elastomer host *in bulk*, and *in the absence of addition of water to the elastomer host and in the absence of pre-intercalating the clay in an aqueous based medium*. It is contended that Kato and Elpass teach away from such a process of intercalation of a smectite clay.

Accordingly, it is contended that the Applicant's composition and article of manufacture claims, dependent from the Applicant's process claims, are also patentably distinct from Kato, Elpass or Li or their combination.

Rejection of Process Claims 1, 8 and 9 and Composition and Article claims 10 through 13 Under 35 U.S.C. Section 103(a)

As previously pointed out, careful inspection of the Kato reference reveals that it teaches away from the Applicant's process of amended claim 1 and therefore the remaining dependent process claims 8 and 9, composition claims 10 through 12 and article claim 13.

As previously pointed out, it is contended that the process of the Applicant's amended claim 1 is significantly novel in view of and patentably distinct from the process of Kato. In particular, the process disclosed in Kato requires:

- (1) a clay to be first organized,
- (2) the organized clay to then be mixed with oil and/or plasticizer, and
- (3) the mixture of organized clay, oil and/or plasticizer then blended with an elastomer.

In particular, Kato requires the clay to be organized by an ion exchange between the inorganic ion of the clay and the organic onium ion (e.g. quaternary ammonium salt) in which the clay is dispersed in water and an organic onium ion-dispersed in water is added to the clay-water dispersion which is entirely contrary to the process of the Applicant's amended claim 1.

This teaching of Kato is believed to be a relatively conventional method of intercalating the clay. Significantly, such teaching of Kato leads one directly away from the process of the

Applicant's amended claim 1 which contrarily requires the smectite clay to be intercalated in situ within the elastomer host (via blending a quaternary ammonium salt with a mixture of the clay and elastomer host) in by bulk blending the respective constituents absence of water addition to the elastomer host and in the absence of pre-intercalating the clay in an aqueous medium. Kato requires the clay to be "organized" by both dispersion in water and treated therein by an organic onium ion. Moreover, it is contended that such process of Kato cannot be reconstructed to teach or suggest the process of the Applicant's amended claim 1.

Thus the process of the Applicant's amended claim 1 is not obvious in view of and significantly distinct from the process of Kato, and therefore the remaining dependent process claims 8 and 9, composition claims 10 through 12 and article claim 13 are also significantly distinct from Kato.

Rejection of Process Claim 8 and Tire Claims 14 through 18 under 35 U.S.C. Section 103(a)

As pointed out above and as previous argued, Kato teaches away from the process of the Applicant's amended claim 1. It is contended that Kato cannot be reconstructed to teach or suggest the Applicant's claimed process nor the resultant rubber composition and tire having a component of such rubber composition.

Careful inspection of the Elpass reference indicates that it relates to mixing a pre-modified clay with a combination of two melt processible polymers. The clay is pre-modified by modifying the clay with a swelling agent in a liquid dispersant such as water. The clay may be, for example, a montmorillonite clay or hectorite clay. The swelling agent may be an hydrocarbyl onium salt (e.g. dialkylammonium).

Clearly, as in Kato, Elpass leads one away from both the Applicant's process claim 8 and tire claims 14 through 18 which are ultimately dependent from claim 1 which requires the clay to be intercalated and exfoliated in situ within the elastomer host in the absence water addition to the elastomer host and in the absence of pre-intercalating the clay in an aqueous medium.

Accordingly, it is contended that the combination of the Kato and Elpass references does not make out a prima facie case of obviousness of the Applicant's claimed invention under the requirements of 35 U.S.C. Section 103(a). Indeed, an application of the combination of Kato and Elpass references would require a significant and substantial reconstruction of the Applicant's process and tire claims combined with an undue amount of experimentation.

**Rejection of Claims 21 and 22 Under 35 U.S.C. Section 103(a)**

Claims 21 and 22, as well as new claims 23 through 27, depend upon selectively mixing a coupling agent with the rubber composition prepared by the Applicant's amended process claims.

Significantly, the Kato and Elpass references, which teach away from the Applicant's amended process claims, also do not teach or suggest an inclusion of a coupling agent.

Even if the Li reference could be viewed as teaching one to use a coupling agent in the process of Kato or Elpass to produce a product, for which it is contended that it does not do so, the Li reference cannot teach one to use a coupling agent in the process of the Applicant's amended claims to produce a product without completely reconstructing the process and resulting product of Kato and Elpass because of the aforementioned significant disparity between the process of the Applicant's amended claims and the process required by Kato and Elpass.

Accordingly, it is contended that a combination of Li taken with Kato and/or Elpass does not make out a prima facie case of obviousness of the Applicant's claims 21 through 24.

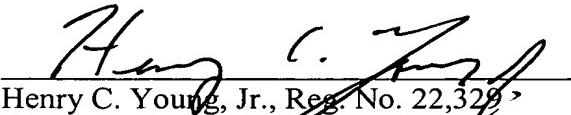
**Conclusion**

It is contended that the combination of the cited references teach away from the invention of the Applicant's amended claims.

It is further contended that the invention of the Applicant's amended claims is not obvious in view of, is patentably distinct from, and that a prima facie case of obviousness is not

made out by the Kato and Elpass references, or their combination, whether or not taken with the Li reference, under the requirements of under 35 U.S.C. Section 103(a).

Respectfully submitted,

  
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